

LARVA OF *CALOPTERON TERMINALE* (SAY) WITH ADDITIONAL  
NOTES ON ADULT BEHAVIOR (COLEOPTERA: LYCIDAE)<sup>1</sup>

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**Abstract.**—Gregarious behavior was observed in the pupae and adults of *Calopteron terminale* (Say) (Coleoptera: Lycidae). Predatory habits in the adults were not confirmed by experiments. The larva and pupa are described and illustrated.

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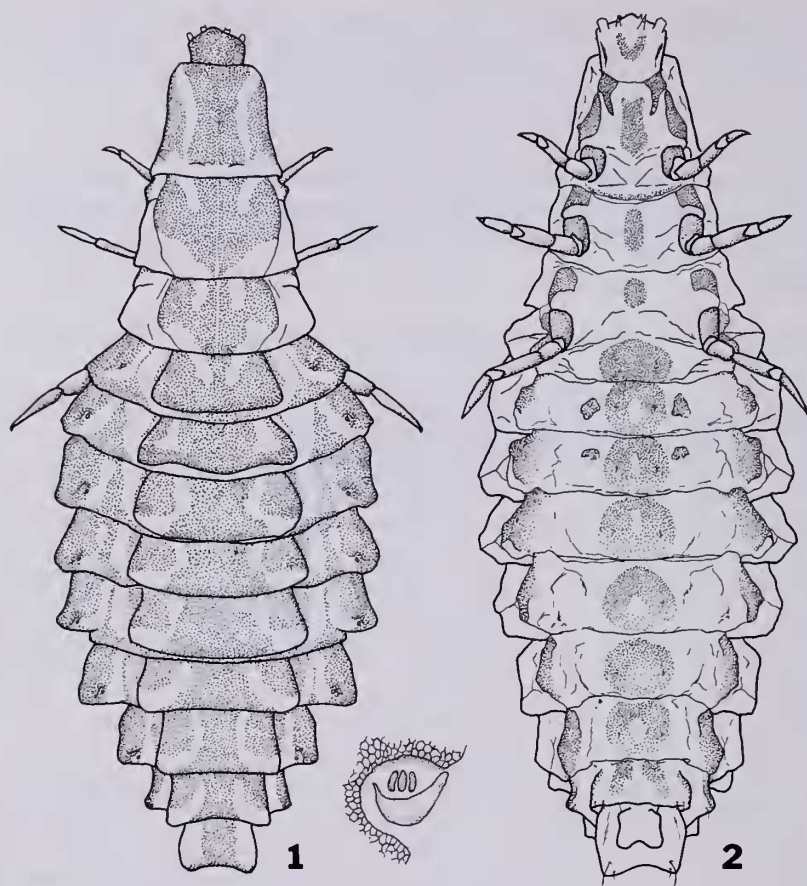
Young & Fischer (1972) observed ultimate instar larvae of *Calopteron terminale* (Say) that were apparently seeking a pupation site. A description of the pupa and details on the pupation were given, based on captive specimens, although the larva was not described. The larval skin is not shed, but splits on the side and remains attached at the base similar to *Calopteron fasciatum* Fab. (Withycombe, 1926). According to Withycombe (1926): "When full grown, the larvae of *C. fasciatum* congregate in masses on the underside of the trunk for pupation. From a nucleus of early individuals a mass of several hundreds may radiate." Young & Fischer (1972) did not report gregarious pupation in *C. terminale*, but they were observing captive specimens. On August 15, 1971, mass pupation of *C. terminale* was observed near North Twin Lake, Becker County, Minnesota.

As with *C. fasciatum*, *C. terminale* would pupate in an expanding circle from a point of origin; this point being a hole in the bark from which the larvae were emerging. Thirty larvae and pupae were on the surface of the bark. The site was not revisited and more individuals may have emerged from beneath the bark. Several adults were observed eclosing at midday. Mating did not occur at the pupation site and unmated adults were observed taking their maiden flight. Mated pairs have been observed dropping from canopy aggregations of *C. terminale* in Minnesota and North Dakota and in canopy aggregations of *Lycus loripes* (Chevrolat) and *Lycus arizonensis* Green in Arizona. The weak flight of lycids is not capable of supporting two individuals and mated pairs frequently become dislodged and fall to the ground. Burke (1976) gave a detailed account of pre-copulatory behavior in *C. terminale*.

Eisner & Kafatos (1962) proved that the gregarious activities of *Lycus loripes* were facilitated by an unidentified pheromone emitted by the males.

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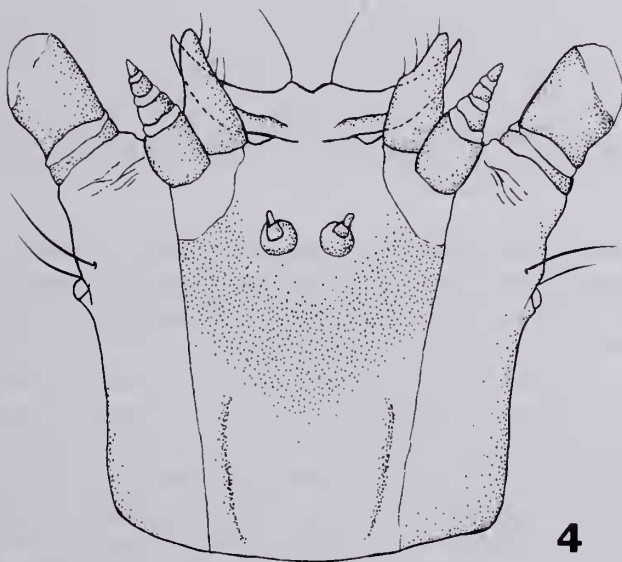
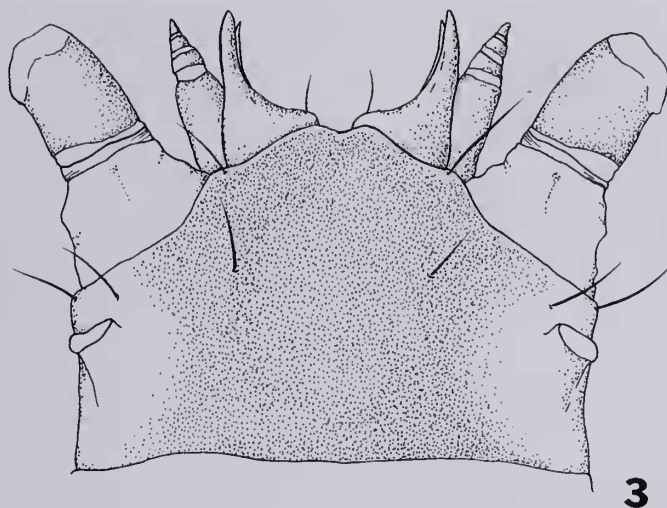
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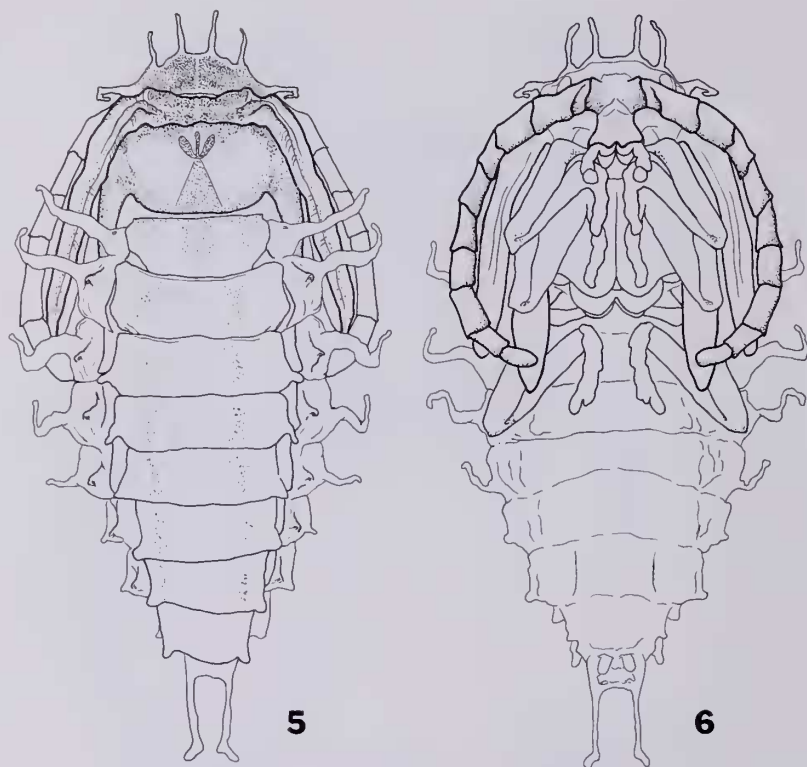
Figs. 1-2. *Calopteron terminale* (Say), mature larva, dorsal and ventral aspects (insert: abdominal spiracle). North Twin Lake, Becker County, Minnesota. Total length 14.0 mm.

It is not known if *C. terminale* employ a pheromone. The senior author and Robert Dregseth encountered an aggregation of several hundred *C. terminale* on June 22, 1972, near the Walcott Dunes, Richland County, North Dakota. The beetles were abundant in the uppermost leaves of a boxelder (*Acer negundo* L.). The tree was in a sunny location and was infested with aphids. A sample of the beetles was collected with an eight foot pole-and-net assembly from the roof of a van.

Young & Fischer (1972) and Britton (1967) speculated that the adults were predaceous. Four *C. terminale* adults from the Catskill Mountains, Greene County, New York, were deprived of food and water for three days. After this time, they were offered droplets of water upon which they drank until



Figs. 3-4. *Calopteron terminale* (Say), larval head capsule, dorsal and ventral aspects. North Twin Lake, Becker County, Minnesota.



Figs. 5-6. *Calopteron terminale* (Say), pupa, dorsal and ventral aspects. North Twin Lake, Becker County, Minnesota. Total length 12.7 mm.

satiated, then they were offered de-winged flies, chrysomelid larvae, mirid immatures, and a noctuid larva. They would not attack any of these and would actually make escape movements when one of the "prey" was encountered. Burke (1976) offered adults of *C. terminale* a small weevil larva, *Cossonus* sp., but could not get them to feed. The Catskill beetles were also offered aphids. Again, escape movements were noted when the prey were detected. Finally, honey dew from the aphids was provided. The beetles, even though satiated for water, fed readily on the honey dew. However, sugar solutions are readily taken in by beetles (Thorsteinson (1960); Gottschalk (1957)). Nonetheless, the presence of honey dew may be important for site selection in *C. terminale*. Linsley, et al. (1961) reported nectar and pollen feeding in *Lycus loripes*. In addition, *Lycus minutus* Green has been observed feeding on the staminate cones of *Salix* sp. in Miller Canyon, Huachuca Mountains, Arizona.

The pupa (Figs. 5 & 6) has been previously described by Young & Fischer

(1972) and a photograph of the pupa was reproduced. The dorsal tubercles found in the pupal stage are reminiscent of the larval tubercles of *Caenia dimidiata* Fab. (figured by Böving & Craighead, 1931) and suggests the close relationship of the two genera.

The larva of *C. terminale* lives beneath as well as upon the bark of dead trees, apparently showing a preference to erect trunks. Lycid beetle larvae of the tribe Lygistopterini also occur under bark or in rotten wood, but many Lycini larvae can be taken on open ground at night. Larvae of *C. terminale* are probably lignivorous as is *C. fasciatum* (Withycombe, 1926). The description is based on an ultimate instar larva.

### The Larva of *Calopteron terminale* (Say)

*General*.—Onisciform; 14 mm long, 5 mm wide; body depressed, curved in lateral view, with dark brown markings on a brown body, glabrous.

*Head*.—Prognathous, depressed, subquadrate, partially hidden by prothorax; frontal and epicranial sutures absent; frons, clypeus, and labrum fused; a single large ocellus on lateral margin posterior to each antenna; antennae prominent, two-segmented, basal segment a narrow ring, terminal segment short, blunt, "dome shaped," with membranous tip; mandibles falciform, each bearing single, short seta, in two parts, inner ensheathed by outer shell, curved at tip, opposed at base; maxillary palpi conical, each 4-segmented; galea subequal to palpus in length, bearing 4 short setae; stipes and cardo fused to enlarged mentum; labial palpi small, one-third length of maxillary palpi, 2-segmented, each arising from membranous basal segment, approximate to each other but distant from base of maxillary palpus; mentum and submentum fused.

*Thorax*.—Prothorax longest of three sequentially decreasing segments; prothoracic spiracle located near anterior margin of mesothorax within lateral sclerotized projection; meso- and metathorax with somewhat circular dorsal shield; legs moderately long, tibia bearing tiny hairs, tapering to single tarsal claw.

*Abdomen*.—Depressed, widest and thickest at mid-abdominal region, segments 1–8 with elevated subquadrate dorsal shields, distinct lateral flanges sclerotized dorsally; abdominal spiracles (Fig. 1) apparently of an annular biforous type with annular portion inconspicuous, borne on tubercle; ventral abdominal aspects with circular markings each bearing two extremely minute setae; segment 9 flat, posterior margin concave bearing 4 short setae ventrally; urogomphi absent.

*Material examined*.—One mature larva, North Twin Lake, Becker County Minnesota, August 15, 1971, collected and determined by association with reared adults by T. L. McCabe.

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